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10/581,210

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03/17/2009

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EXAMINER

KHOSRAVIANI, ARMAN

ART UNIT

PAPER NUMBER

2818

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--------------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/581,210 | Applicant(s) OTA ET AL. | |
| | Examiner Arman Khosraviani | Art Unit 2818 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 6-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 6-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/25/2008 have been fully considered but they are not persuasive. Amended Independent claims 1, 6, and 8 recite the manner in which a claimed apparatus is intended to be employed and does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ F.2d 1647 (1987).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Deng et al. (US 5,980,977).

Regarding claims 1, 6, and 8 (which recite identical limitations), a water electrolysis system, comprising: an electrode (col. 7, ll. 56-67, col. 26, ll. 41-54) including a metal oxynitride electrode catalyst comprising an oxynitride containing at least one transition metal element selected from the group consisting of La, Ta, Nb, Ti, and Zr, wherein atomic ratio of (transition metal element):(oxygen):(nitrogen) is $(1\pm0.1):(1\pm0.1):(1\pm0.1)$ (column 12, line 48 – column 13, line 3); and an acidic electrolyte contacting said metal oxynitride electrode catalyst; (col. 22, ll. 46-56),

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relative to the reversible hydrogen electrode potential in said acidic electrolyte. Deng teaches ("water...non-aqueous electrolytes based on propylene carbonate and ethylene carbonate are also used" (col. 25, ll. 7-9), "...non liquid based electrolytes (e.g. solid and polymer) may be used" (col. 25, ll. 19-21), and "an electrolyte selected from either an aqueous inorganic acid or a non-aqueous organic ionically conducting medium" (col. 60, ll. 39-41)) claim 1: water is electrolyzed in the water electrolysis system by electric power, claim 6: an organic compound is electrolyzed in the organic electrolysis system by electric power, or claim 8: electric power is generated by the fuel cell is merely a functional/intended use limitation that does not structurally distinguish the claimed invention over the prior art. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). Moreover, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Therefore, the phrases "water is electrolyzed in the water electrolysis system by electric power", "an organic compound is electrolyzed in the organic electrolysis system by electric power", or "electric power is generated by the fuel cell" is thus non-limiting.

The limitation "wherein said metal oxynitride electrode catalyst having a potential of 0.4 V or higher relative to the reversible hydrogen electrode potential in the acidic electrolyte" is merely a functional/intended use limitation that does not structurally distinguish the claimed invention over the prior art. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). Moreover, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Therefore, the phrase "used at a potential of 0.4 V or higher relative to the reversible hydrogen electrode potential in the acidic electrolyte" is thus non-limiting.

The statement "A water electrolysis system" is a statement reciting the purpose or intended use of the structural limitations, and therefore do not impart patentable weight to the device above. This rationale is further support by applicant's disclosure, which states the fields of use for the invention (§ 29). See *Ex Parte Masham*, USPQ2d 1647, also MPEP 2111.02 (II).

The statement "An organic electrolysis system" is a statement reciting the purpose or intended use of the structural limitations, and therefore do not impart patentable weight to the device above. This rationale is further support by applicant's

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disclosure, which states the fields of use for the invention (§ 29). See *Ex Parte Masham*, USPQ2d 1647, also MPEP 2111.02 (II).

The statement "A fuel cell" is a statement reciting the purpose or intended use of the structural limitations, and therefore do not impart patentable weight to the device above. This rationale is further support by applicant's disclosure, which states the fields of use for the invention (§ 29). See *Ex Parte Masham*, USPQ2d 1647, also MPEP 2111.02 (II).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: (***See MPEP Ch. 2141***)

- a. Determining the scope and contents of the prior art;
- b. Ascertaining the differences between the prior art and the claims in issue;
- c. Resolving the level of ordinary skill in the pertinent art; and
- d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 2, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deng et al. (US 5,980,977) in view of Clerc et al. (US 6,190,802).

Regarding claims 2, 7, and 9 (which recite identical limitations), Deng fails to teach the metal oxynitride electrode catalyst is dispersed as fine particles on a catalyst carrier which is an electronically conductive powder.

However, Clerc teaches (col. 2, ll. 54-67, and col. 3, ll. 1-41) the metal oxynitride electrode catalyst (dopants) is dispersed as fine particles on a catalyst carrier which is an electronically conductive powder (col. 3, ll. 23-41).

Since both Clerc and Deng teach the device above, it would have been obvious to have incorporated the above features of Clerc in Deng for the benefit of increasing the electrical conductivity of the device (col. 3, Id.).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arman Khosraviani whose telephone number is 571-272-6402. The examiner can normally be reached Monday-Friday, 8am - 5pm (Eastern Time).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Loke can be reached on 571-272-1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Arman Khosraviani/

Examiner, Art Unit 2818

3/17/2009

/Steven Loke/

Supervisory Patent Examiner, Art Unit 2818